

Abstract of the Disclosure

The subject method pertains to a method and apparatus for welding. The subject invention can be utilized for welding very thin sections of stainless steel. The subject technique can incorporate a laser, such as a Nd:YAG, CO₂, or diode laser. Furthermore, the laser may be a continuous wave (CW) or pulsed type. The subject invention can reduce or eliminate the need for expensive seam tracking or line following devices to compensate for tooling tolerances, stamping tolerances, and other effects leading to movement of the parts as they are rotated under a welding means. The subject invention can enable high quality symmetrical welds on thin sections of material, while reducing the attention required by a human operator. Furthermore, the method can be applied to other materials. Because of the nature of the beam delivery system, the spatial mode structure of the laser beam is no longer critical to the weld quality of the finished product. The method can be applied to weld the inner and outer diameters of welded bellows sections.